

genera *Macacus* and *Cercopithecus* had been born in the Society's gardens, namely :—

*Macacus sinicus*, April 2, 1885.

*Macacus rhesus*, April 6, 1887.

*Cercopithecus callitrichus*, Feb. 22, 1890.

*Macacus rhesus*, March 31, 1890.

*Cercopithecus lalandii*, June 11, 1893.

Concerning the last birth a curious fact had been observed and reported by the keepers—that the young monkey, which lived about two months, had been in the habit of sucking both of the mother's teats at once, as shown in the sketch taken by Mr. Holding (see p. 615), who had himself witnessed the act.

Mr. Tegetmeier exhibited a mounted specimen of a Grouse from Scotland, supposed to be a hybrid between *Tetrao tetrix* and *Lagopus scoticus*.

Mr. G. A. Boulenger, F.Z.S., read a paper "On a Nothosaurian Reptile from the Trias of Lombardy, apparently referable to *Lariosaurus*." His description was based on a small, nearly perfect specimen from Perledo, showing the ventral aspect, belonging to the Senckenberg Museum in Frankfort-on-Main, which had been intrusted to him by the Directors of that institution and was exhibited before the Meeting. The author pointed out the presence of a series of minute teeth on the pterygoid bones, and of an entepicondylar (ulnar) foramen in the humerus. The number of phalanges was 2, 3, 4, 4, 3 in the manus, and 2, 3, 4, 5, 4 in the pes; the terminal phalanx was flattened and obtusely pointed, not claw-shaped. In discussing the affinities of this reptile the author stated that the *Lariosaurus* described by Diecke did not appear to be generically distinguishable from the *Neusticosaurus* of Seeley, which he referred to the *Lariosauridae*, regarding that family as intermediate between the *Mesosauridae* and the *Nothosauridae*, though nearer the latter. The *Mesosauridae*, in his opinion, formed one suborder, the *Lariosauridae* and *Nothosauridae* together a second suborder, of the order *Plesiosauria*.

This paper will be printed entire in the Society's 'Transactions.'

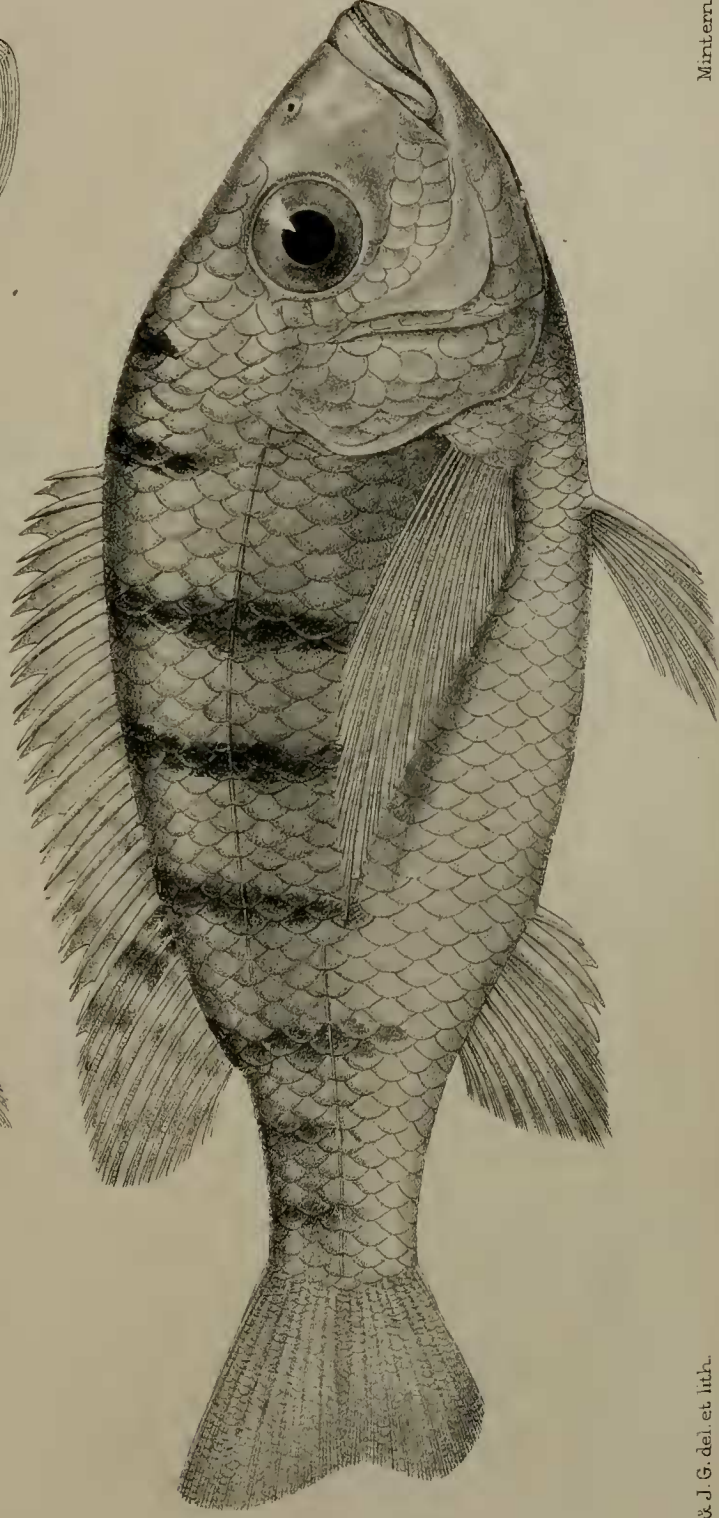
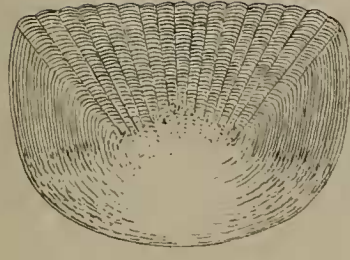
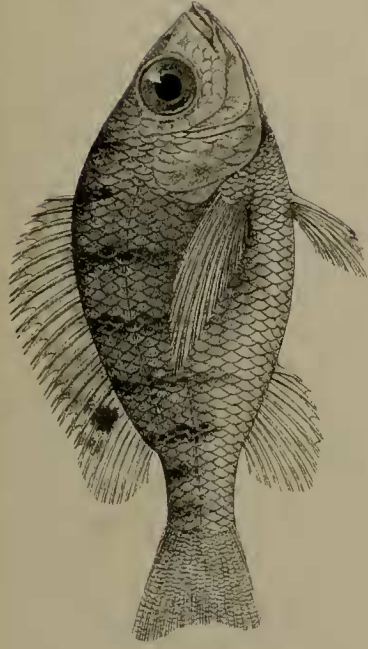
The following papers were read :—

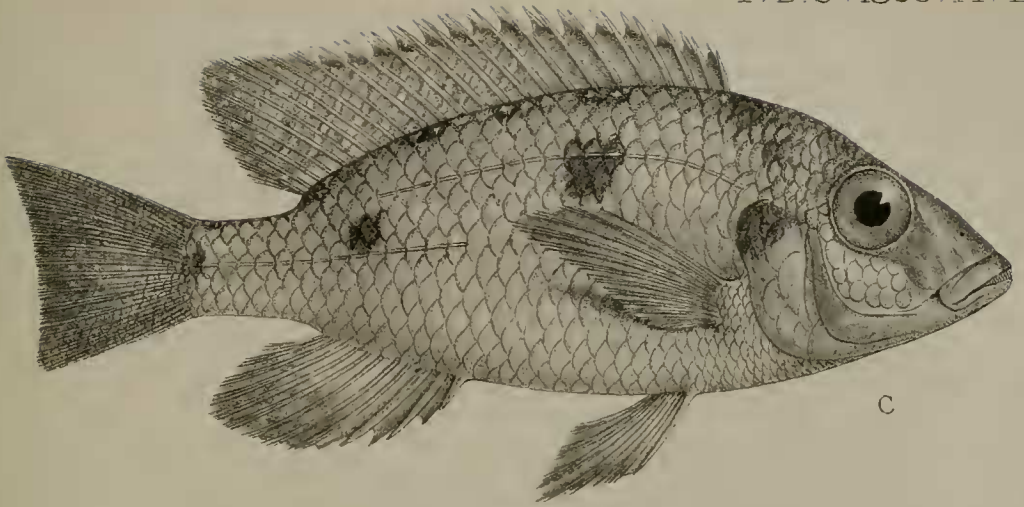
1. Second Report on the Reptiles, Batrachians, and Fishes transmitted by Mr. H. H. Johnston, C.B., from British Central Africa. By Dr. A. GÜNTHER, F.R.S., V.P.Z.S.

[Received November 7, 1893.]

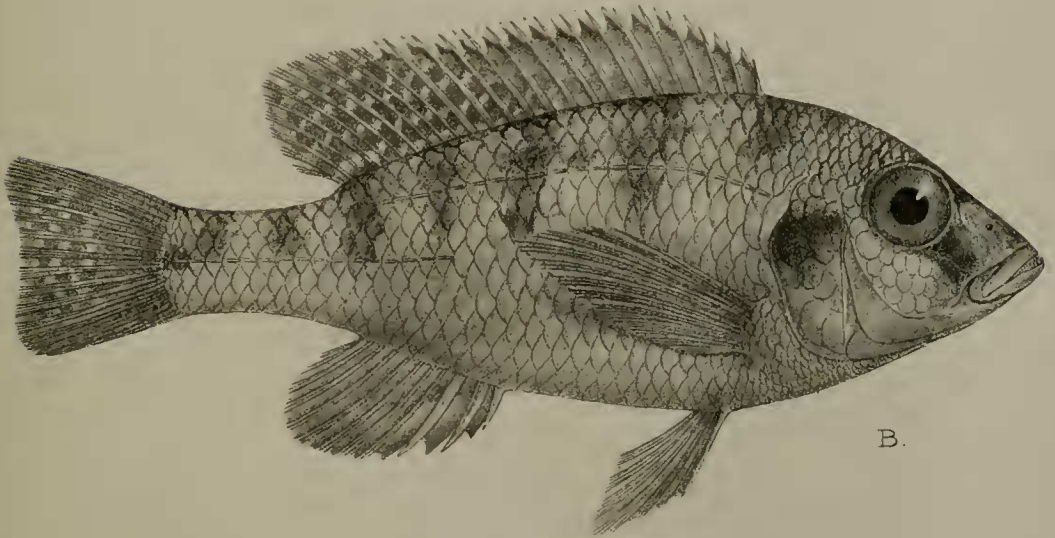
(Plates LIII.—LVII.)

Since the publication of my first Report on this subject (see P. Z. S. 1892, p. 555) two more consignments have been received

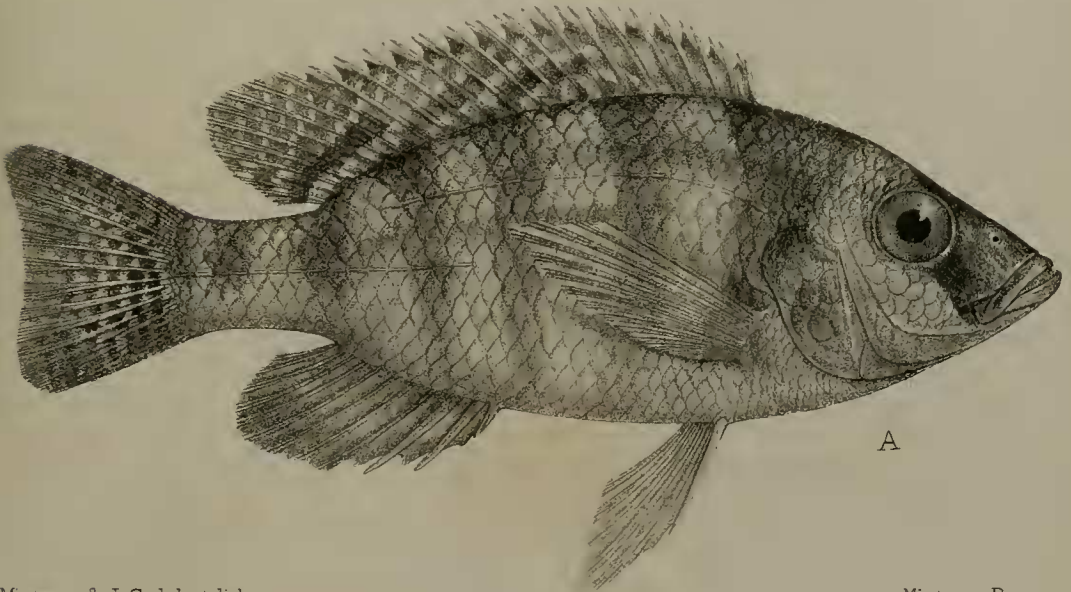




C



B.

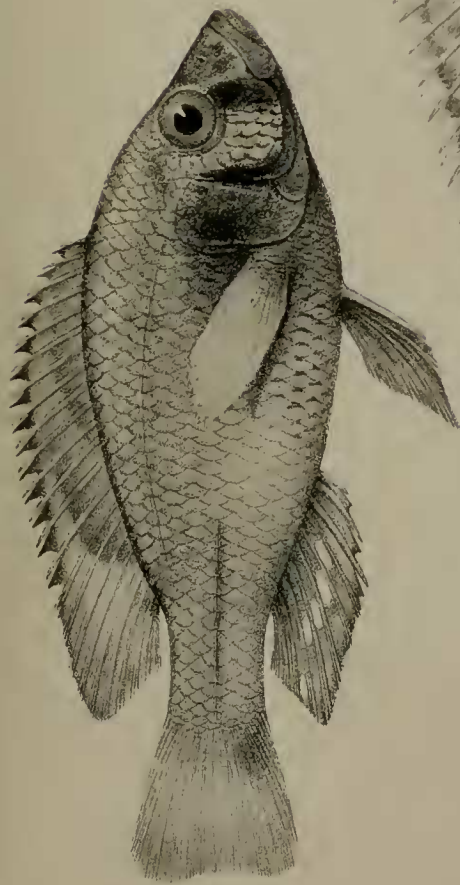


A

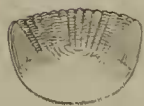
CHROMIS.

A. CH. JOHNSTONI B. CH. SUBOCULARIS C. CH. TETRASTIGMA.

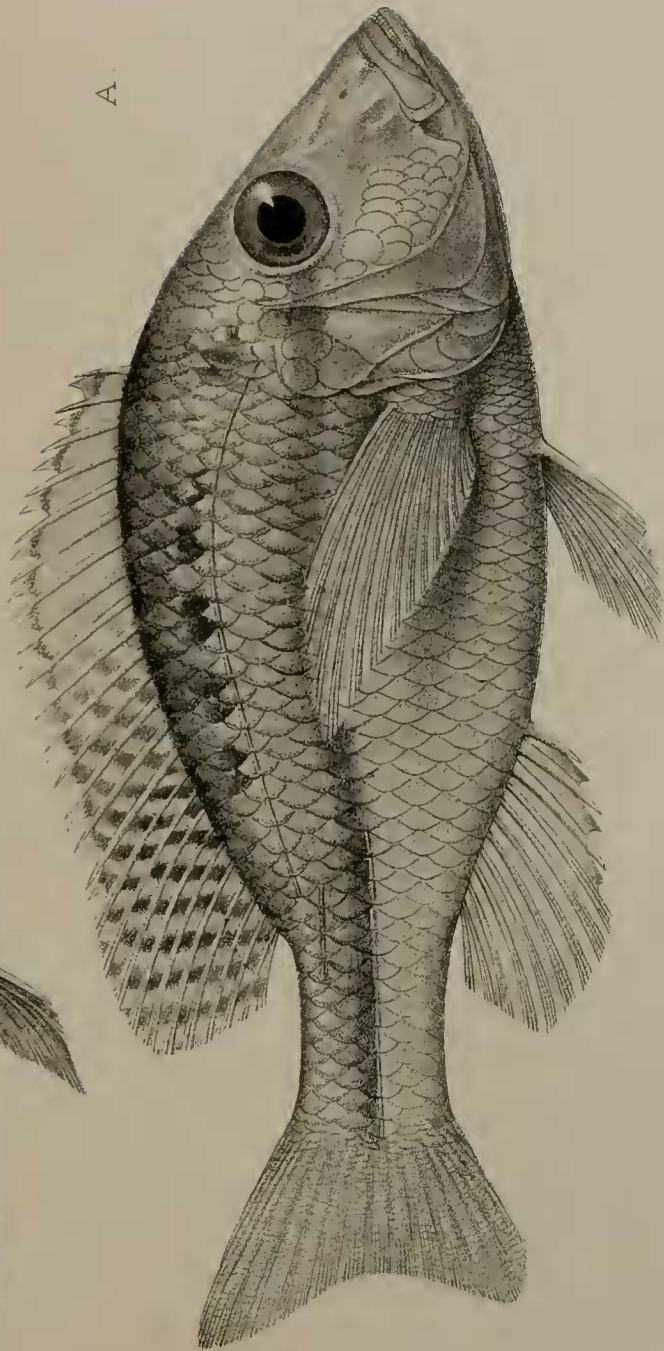




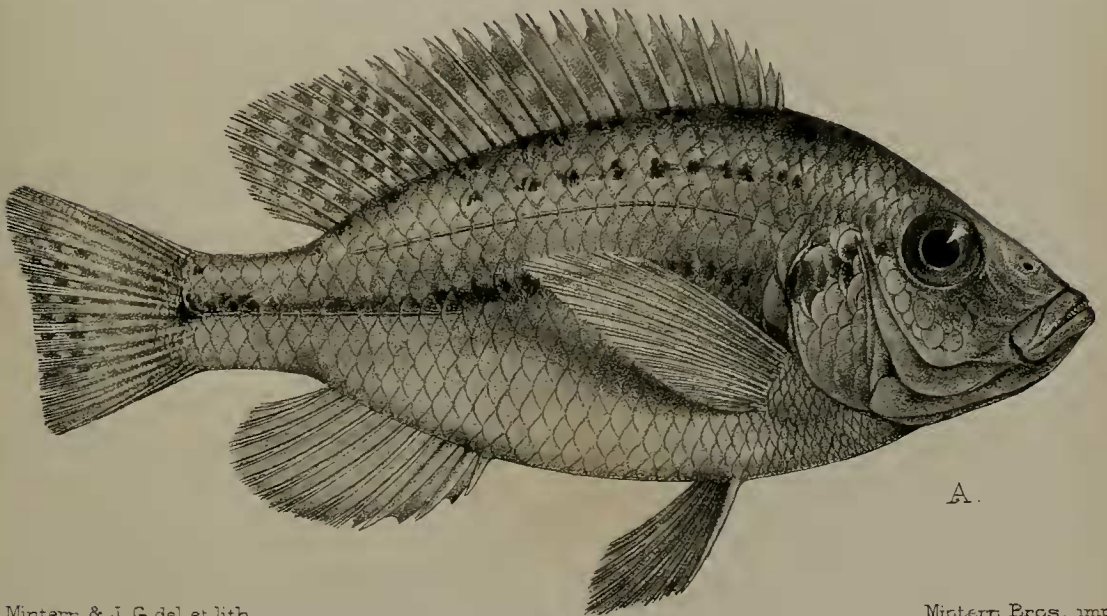
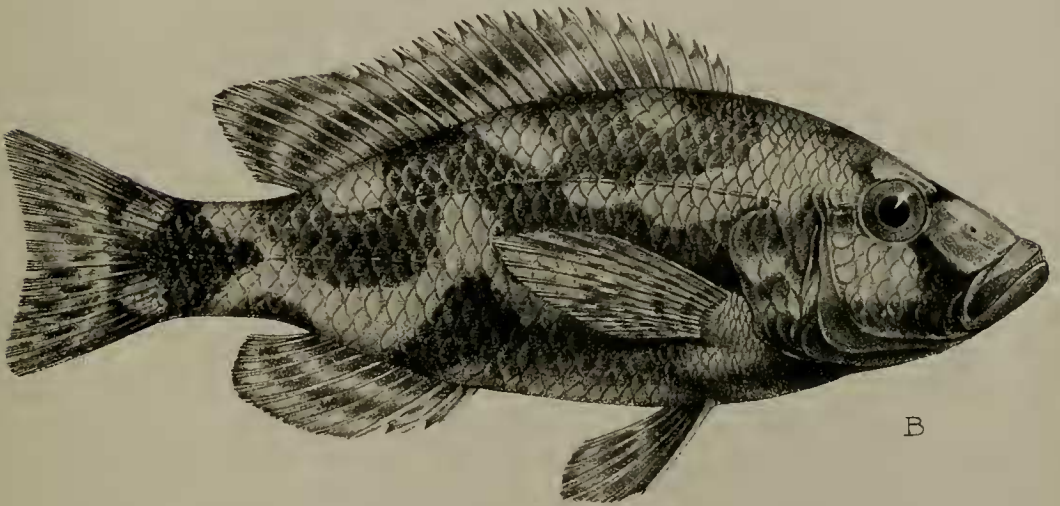
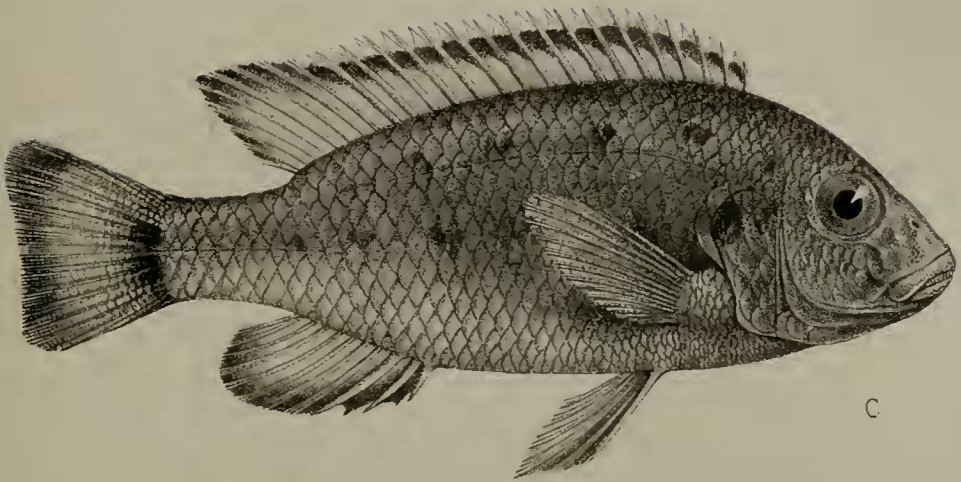
B



A



A. CHROMIS LETHRINUS. B. CHROMIS CALLIPTERUS.



R. Minter & J. G. del. et lith.

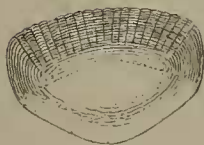
Minter. Eros. imp.

A. CHROMIS KIRKII. B. HEMICHROMIS LIVINGSTONII.  
C. CHROMIS WILLIAMSII

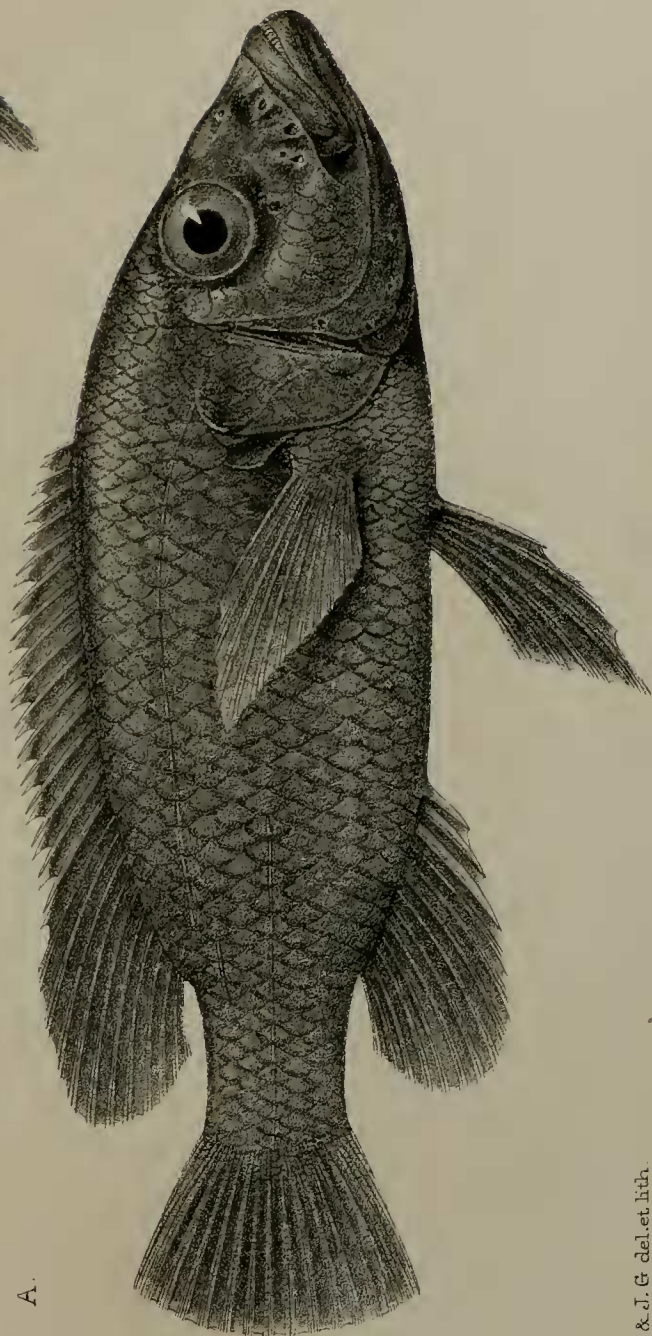


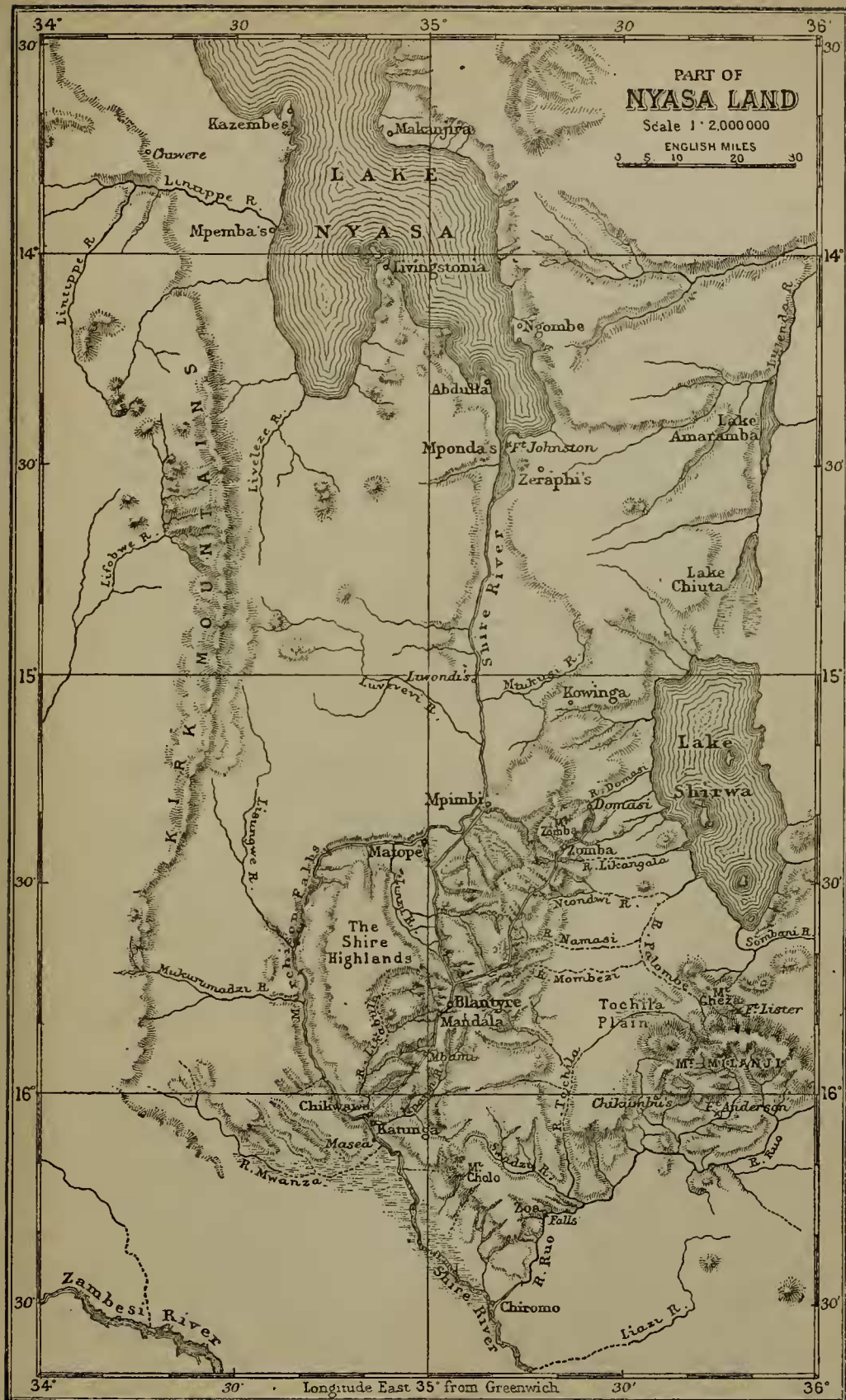


B



A.





MAP OF SOUTHERN NYASALAND.

F.S. Weller.



from Mr. Johnston through Mr. Sclater. The Reptiles and Batrachians, having been collected in nearly the same localities as those of the first consignment, represent the same species which were described in the first Report, but with the addition of several others new to the Nyasa district. They will be enumerated below.

The most important portion, however, of this consignment consists of Fishes from Lake Nyasa. Since the year 1864, when I described the skins collected and prepared by Livingstone's companion, Sir J. Kirk (see P. Z. S. 1864, p. 303), nothing has been done to advance our knowledge of the Fish Fauna of this Lake. The only specimens which have reached me were collected in 1891 by the Rev. J. A. Williams, who kindly presented them to the British Museum; they are noticed in the present report. The specimens collected by Mr. Whyte, the naturalist attached to Mr. Johnston's staff<sup>1</sup>, are unfortunately of small, many of very small size; but they reveal the remarkable fact, which has also been observed in much smaller freshwater areas, like Lake Tiberias, that the genera *Chromis* and *Hemichromis* are represented in the same river-basin not by one or two, but by a considerable number of species closely allied to, but readily distinguishable from, each other. To judge from the manner in which these fishes were distributed in the collecting-jars, the various species inhabit the same localities.

To the list of species already given in my former report the following have to be added:—

CHELONIANS: *Cycloderma frenatum* (Ptrs.); *Sternotherus sinuatus* (Smith).

LIZARDS: *Lygosoma sundevalli* (Smith); *Gerrhosaurus flavigularis* (Wiegman); *Hemidactylus mabouia* (Moreau); *Chamaeleon dilepis* (Gray); *Chamaeleon melleri* (Gray).

SNAKES: *Coronella olivacea*, var. *dumerilii* (Gthr.); *Dasypeltis scabra* (L.); *Psammophis sibilans* (L.); *Psammophis sibilans*, var. *intermedia* (Fisch.); *Ahetulla neglecta* (Ptrs.); *Dryiophis oatesii* (Gthr.); *Naja nigricollis* (Rnhdt.); *Causus rhombeatus* (L.); *Clotho rhinoceros* (Schleg.).

BATRACHIANS: *Rana johnstoni*, sp. n.; *Cassina senegalensis*

<sup>1</sup> [Mr. Alexander Whyte, F.Z.S., who fills the post of Naturalist and Horticulturist under Mr. Johnston in the Central African Administration, is resident at Zomba, the seat of the Administration, which is situated on the south-east slope of Mount Zomba, close to the Mlungusi Stream, and is therefore in the watershed of Lake Shirwa, not in that of the Zambesi (see the article on Routes and Districts in Southern Nyasaland by Lieut. B. L. Sclater, R.E., in the 'Geographical Journal,' vol. ii. p. 419, Nov. 1893). In November 1892, Mr. Whyte accompanied H.B.M. Commissioner in a journey to Fort Johnston, which is situated on the east bank of the Upper Shiré, about two miles below its exit from Lake Nyasa. It was upon this occasion that the collection of Fishes described by Dr. Günther in the present paper was made, as I find by reference to his letters. Fort Johnston, Zomba, and most of the other localities from which Mr. Johnston's various collections have been received are shown in the map (p. 617), which has been reprinted (with emendations) from that in the 'Geographical Journal' for 1893, p. 249.—P. L. S.]



(Smith); *Arthroleptis macrodactyla* (Blgr.); *Rappia cinctiventris* (Cope, = *citrina*, Gthr.); *Rappia nasuta* (Gthr.).

FISHES: *Chromis squamipinnis* (Gthr.); *Chromis subocularis*, sp. n.; *Chromis johnstoni*, sp. n.; *Chromis lethrinus*, sp. n.; *Chromis tetrastigma*, sp. n.; *Chromis callipterus*, sp. n.<sup>1</sup>; *Chromis kirki*, sp. n.; *Chromis williamsi*, sp. n.<sup>1</sup>; *Hemichromis intermedius* (Gthr.); *Hemichromis modestus*, sp. n.; *Hemichromis livingstonii*, sp. n.; *Hemichromis afer*, sp. n.; *Hemichromis longiceps* (Gthr.); *Bagrus meridionalis*, sp. n.; *Synodontis zambesensis* (Ptrs.)<sup>1</sup>; *Alestes imberi* (Ptrs.); *Mormyrus discorhynchus* (Ptrs.)<sup>1</sup>; *Mormyrops zambanenje* (Ptrs.)<sup>1</sup>; *Haplochilus johnstoni*, sp. n.; *Laheo mesops*, Gthr.<sup>2</sup>; *Barbus trimaculatus* (Ptrs.)<sup>3</sup>; *Engraulicypris pinguis* (g. et sp. n.)<sup>1</sup>.

This addition raises the number of species of fishes now known from Lake Nyasa and the Shiré River to thirty-three, but the number actually inhabiting these waters may be safely estimated at thrice that figure at the very least.

I subjoin descriptions of the new species, with some notes on others previously known.

#### RHAMPHOLEON BRACHYURUS, Gthr. P. Z. S. 1892, p. 557.

This species was described in the first report from a female; Mr. Johnston has now sent a male, which does not essentially differ from the opposite sex.

#### RHAMPHOLEON PLATYCEPS, Gthr. P. Z. S. 1892, p. 556.

This species was also described in the first report from a female, which, besides, was mutilated. The male now sent shows that the tail is really as short as represented (in outline) in the figure given of this species. The male has a very small skinny lobe at the end of the snout, and about six distant and inconspicuous tubercular projections along the median ridge of the back. It was obtained at Tshiromo.

*Rhampholeo boettgeri*, Pfeffer, Zool. Ergebn. Reise Stuhlmann, 1893; Rept. p. 8, Taf. i. figs. 6 and 7, may prove to be the same species.

#### PSAMMOPHYLAX VARIABILIS, Gthr. P. Z. S. 1892, p. 557.

This Snake must be very useful as a destroyer of mice; two had examples of *Mus dolichurus* in their stomachs.

#### DASYPELTIS SCABRA, L.

Common. The series of scales vary from 23 to 27. I doubt the specific distinctness of *D. palmarum*.

<sup>1</sup> Obtained by the Rev. J. A. Williams.

<sup>2</sup> Caught in the Upper Shiré River.

<sup>3</sup> This species has a distinct, unserrated, osseous spine, much stronger than the rays and stronger than is figured by Peters, who had one specimen only from the Lower Zambesi.

*AHEUTULLA NEGLECTA* (Ptrs.).

Specimens were collected at Zomba and Milanji. Two of them showed broad irregular brown cross-bands on the anterior fourth of the trunk. The ovary contained only five eggs, ready for exclusion. Feeds on frogs.

*NAJA NIGRICOLLIS*, Rühd. t.

This species would seem to show an extraordinary range in the number of rows of scales counted somewhat before the middle of the trunk. Peters mentions the number of 27; I myself have counted 25, 23 (twice), 21, 19; and now a large specimen obtained by Mr. Crawshay at Lake Mweru, of which he preserved the skin, has only 17 of these rows. It is black above, but shows the black cross-band on the hinder part of the throat. The temporal scute is divided by suture from the adjoining labial, as is characteristic for *N. nigricollis* and *N. tripudians*. The posterior pair of intermentalia are entirely separated from each other by intervening scales. I propose for this remarkable variety (if it be not regarded as a species) the name of *crawshayi*.

*CLOTHO RHINOCEROS*, Schleg.

Skin of a young River-jack from Lake Mweru, collected by Mr. Crawshay.

*RANA JOHNSTONI*, sp. n.

Vomerine teeth in two slightly oblique short series, extending to behind the level of the posterior margin of the choanæ. Head rather broad, with the snout obtusely rounded and rather short; canthus rostralis indistinct; interorbital space rather broader than the upper eyelid; tympanum indistinct, one third the size of the eye. Fingers moderate, the first not extending beyond the second; toes moderate, almost entirely webbed; a single very small inner metatarsal tubercle. The tibio-tarsal articulation reaches to between the eye and the end of the snout. Skin smooth. Upper parts either uniform blackish, or olive coloured and marbled with black; lower parts dusky, throat marbled with brown.

Distance of snout from vent 45 millimetres; distance of the angles of the mouth 16 millimetres; length of hind limb 80 millimetres; length of foot, including metatarsus, 35 millimetres; length of fourth toe 24 millimetres.

Two specimens, obtained at Tshiromo in the month of November.

*ARTHROLEPTIS MACRODACTYLA*, Blgr.

The single specimen is not in a good state of preservation, and its reference to this Gaboon species therefore requires further confirmation.

*RAPPIA NASUTA*, Gthr.

The type came from Angola, but there cannot be any doubt



about its identity with a well-preserved example in the Nyasa collection.

CHROMIS SQUAMIPINNIS. (Plate LIII. ad. et jr.)

*Chromis squamipinnis*, Günth. P. Z. S. 1864, p. 311.

D.  $\frac{15-16}{10-11}$ . A.  $\frac{3}{9}$ . L. lat. 33. L. transv.  $\frac{4}{14}$ .

Teeth very small, notched, brown at the tip, with the inner cusp longest; in young specimens about thirty-four, in old ones about forty on each side of the outer series of the upper jaw. Scales below the eye in two series; those of the body smooth and not ciliated. Forehead broad, flattish, its width being much more than the diameter of the eye. In old specimens the horizontal width of the præorbital equals the diameter of the eye, but is much less in young ones. The scaly part of the cheek is narrow, much narrower than the orbit. The two limbs of the præoperculum meet at a right angle. The height of the body is two fifths of the total length without caudal, the length of the head one third. The length of the longest dorsal spine equal to that of the postorbital portion of the head. Pectoral fin long, sometimes extending beyond the middle of the anal. Caudal densely covered with minute scales, which are visible even in young specimens. Greenish, shining silvery, with six or seven irregular black cross-bands, the foremost in the middle of the neck, the last on the free portion of the tail; the band below the origin of the soft dorsal is frequently continued into a spot on that fin.

This species seems to be the most common. I first described it from skins collected by Sir John Kirk, of which the largest was 12 inches long; Mr. Whyte now sends some specimens from 3 to 4 inches long.

The figure of the adult specimen is reduced to  $\frac{2}{3}$  the natural size.

CHROMIS SUBOCULARIS. (Plate LIV. fig. B.)

D.  $\frac{15}{10}$ . A.  $\frac{3}{8}$ . L. lat. 30. L. transv.  $\frac{3\frac{1}{2}}{10}$ .

Teeth deeply bicuspid, with the inner cusp longest; brown at the tip in a specimen  $4\frac{1}{2}$  inches long; *twenty-three* on each side of the outer series of the upper jaw. Scales below the eye in three series. The diameter of the eye exceeds the width of the præorbital and the width of the interorbital space, which is flat, but is nearly equal to the depth of the scaly portion of the cheek. The two limbs of the præoperculum meet at nearly a right angle. The height of the body is nearly equal to the length of the head and one third of the total without caudal; the longest dorsal spine is the last, and less than one half of the length of the head. Pectoral fin extending to the origin of the anal. Scales smooth. Body with seven blackish cross-bands, which are rather irregular and do not descend to the lower half of the body; the first is in front of the dorsal and the last two on the caudal peduncle; a short black

streak from the eye to the angle of the mouth; the soft dorsal and caudal with alternate darker and lighter spots between the rays; anal not coloured.

Very young specimens, from 2 to  $3\frac{1}{2}$  inches long, have the body of uniform coloration, but the suborbital band is present.

The largest specimen is  $4\frac{1}{2}$  inches long.

*CHROMIS JOHNSTONI*, sp. n. (Plate LIV. fig. A.)

D.  $\frac{16}{10}$ . A.  $\frac{3}{8-9}$ . L. lat. 30. L. transv.  $\frac{4}{10}$ .

Teeth distinctly bicuspid, with the inner cusp longest, brown at the tip in a specimen  $4\frac{3}{4}$  inches long; *thirty* on each side of the outer series of the upper jaw. Scales below the eye in three series. The diameter of the eye equals the width of the præorbital and the depth of the scaly portion of the cheek, but exceeds the width of the interorbital space, which is convex. The angle formed by the præopercular limbs is very obtuse. The height of the body is nearly equal to the length of the head and one third of the total. The longest dorsal spine is the last, and less than one half of the length of the head. Pectoral fin extending to the origin of the anal. Scales smooth. Body with six blackish cross-bands, which descend to the lower half of the body; the first is in front of the dorsal, the fifth below the end of the dorsal, and the last on the caudal peduncle; a short black streak from the eye to the angle of the mouth; dorsal and caudal fins chequered with darker and lighter spots.

Only one specimen is sent,  $4\frac{3}{4}$  inches long.

*CHROMIS LETHRINUS*, sp. n. (Plate LV. fig. A.)

D.  $\frac{15}{10}$ . A.  $\frac{3}{8}$ . L. lat. 33. L. transv.  $\frac{3\frac{1}{2}}{10}$ .

Teeth very small, each with two short, subequal, brownish cusps; thirty-seven on each side of the outer series of the upper jaw. Scales below the eye in three series. The diameter of the eye is less than the width of the præorbital and equal to the depth of the scaly portion of the cheek and to the width of the interorbital space, which is flat. The angle formed by the præopercular limbs is nearly a right one. The height of the body is nearly equal to the length of the head and rather more than one third of the total (without caudal). The longest dorsal spine is the last and less than one half of the length of the head. Pectoral fin extending a little beyond the origin of the anal. Caudal covered with minute scales. Scales smooth. Body with a straight blackish longitudinal band running from the eye above the caudal portion of the lateral line; back with transverse blackish spots; dorsal fin with oblique blackish bands; caudal and anal without ornamentation.

Only one specimen is sent,  $5\frac{3}{4}$  inches long.



## CHROMIS TETRASTIGMA, sp. n. (Plate LIV. fig. C.)

D.  $\frac{15}{10}$ . A.  $\frac{3}{8}$ . L. lat. 30. L. transv.  $\frac{3\frac{1}{2}}{10}$ .

Teeth distinctly bicuspid, brown at the tip, the inner cusps being larger than the outer; from twenty-eight to thirty-two on each side of the outer series of the upper jaw. Scales below the eye in three series. In a specimen  $4\frac{1}{2}$  inches long the diameter of the eye exceeds the width of the præorbital, the depth of the scaly portion of the cheek, and the width of the interorbital space, which is flat. The angle formed by the præopercular limbs is nearly a right one. The height of the body is rather more than the length of the head, which is one third of the total (without caudal). The length of the last dorsal spine is two fifths of that of the head. Pectoral fin extending to the origin of the anal. The upper and lower caudal rays covered with scales. Scales smooth. A series of four large black spots on the body—the first on the operculum, the second on the lateral line opposite to the ninth and tenth dorsal spines, the third on the beginning of the lower lateral line, the fourth on the root of the caudal fin. Vertical and ventral fins blackish, the dorsal with numerous ocelli.

Several specimens, of which the largest is  $4\frac{1}{2}$  inches long, are sent from Zomba and from Fort Johnston.

## CHROMIS CALLIPTERUS, sp. n. (Plate LV. fig. B.)

D.  $\frac{14}{9}$ . A.  $\frac{3}{7}$ . L. lat. 27-28. L. transv.  $\frac{4-5}{10}$ .

Teeth distinctly bicuspid, the cusps being short, subequal, and brownish; from twenty-seven to thirty-two (in very young specimens twenty-two) teeth on each side of the outer series of the upper jaw. Scales below the eye in three series. In a specimen  $5\frac{1}{2}$  inches long the diameter of the eye equals the width of the præorbital and of the interorbital space, but is a little less than the depth of the scaly portion of the cheek. The angle formed by the præopercular limbs is a right one. The height of the body is rather more than the length of the head, which is one third of the total (without caudal). The longest dorsal spine is the last and rather less than one half of the length of the head. Pectoral fin extending to the origin of the anal; caudal more or less scaleless. Scales roughened, with minute projections on the margin. Body dark-coloured, with the vertical fins blackish, the anal being ornamented by a series of large milky-white ocelli from two to four in number; in our largest specimen also the dorsal fin is ornamented with round light-coloured spots. A black band running from the eye to the angle of the mouth seems to be constant.

The largest specimen is  $5\frac{1}{2}$  inches long, and was sent by the Rev. J. A. Williams; smaller specimens from Zomba are in the Johnston collection.

*CHROMIS KIRKII*, sp. n. (Plate LVI. fig. A.)D.  $\frac{15}{9}$ . A.  $\frac{3}{8}$ . L. lat. 29. L. transv.  $\frac{5}{10}$ .

Teeth distinctly bicuspid, each with two subequal brownish cusps, from seventeen to nineteen on each side of the outer series of the upper jaw. Scales below the eye very thin, in three rather irregular series. In a specimen  $4\frac{1}{2}$  inches long the diameter of the eye is rather more than the width of the præorbital or than the depth of the scaly portion of the cheek, but equal to the width of the interorbital space, which is flat. The angle formed by the præopercular limbs is an obtuse one. The height of the body is two fifths the length of the head, one third of the total (without caudal). The longest dorsal spine is not quite one half of the length of the head. Pectoral fin extending to, or a little beyond, the origin of the anal fin. Caudal fin covered with minute scales. Scales rough, with minute projections on the margin. A rather narrow straight black stripe runs from the opercular spot to the end of the lateral line; another similar band, but broken up into spots, runs along the side of the back, and is absent in very young individuals. The soft dorsal with oblique, alternate, lighter and darker bands. No band across the præorbital.

Several specimens, the largest being  $4\frac{1}{2}$  inches in length.

*CHROMIS WILLIAMSII*, sp. n. (Plate LVI. fig. C.)D.  $\frac{17}{8}$ . A.  $\frac{3}{7}$ . L. lat. 28. L. transv.  $\frac{7}{12}$ .

Teeth deeply bicuspid, brown at the tip, the inner cusps being much larger than the outer; twenty-six or twenty-seven on each side of the outer series of the upper jaw. Scales below the eye in four series; the scales on the neck between the anterior dorsal spines and the beginning of the lateral line are remarkably small. In a specimen  $4\frac{1}{3}$  inches long the diameter of the eye exceeds the width of the præorbital, is equal to the depth of the scaly portion of the cheek and less than the width of the interorbital space, which is rather convex. The angle formed by the præopercular limbs is a right one. The height of the body is a little more than the length of the head, which is one third of the total (without caudal). The length of the last dorsal spine is less than one half of that of the head. Pectoral fin not quite reaching the vent; caudal fin covered with scales. Scales rough, without spines on the margin. Body nearly uniform dark-coloured, with a black spot on the end of the operculum, and another at the root of the caudal fin; vertical fins blackish, the dorsal with a broad black margin and the anal with a small milky-white spot between the fifth and sixth rays.

A single specimen,  $4\frac{1}{3}$  inches long, obtained by the Rev. J. A. Williams.



*HEMICHROMIS MODESTUS*, sp. n. (Plate LVII. fig. A.)D.  $\frac{16}{10}$ . A.  $\frac{3}{9}$ . L. lat. 29. L. transv.  $\frac{5}{12}$ .

All the teeth are conical, only one or two showing traces of an additional cusp, thirty-four on each side of the outer series of the upper jaw. Scales below the eye in four rather irregular series; scales on the neck and below the anterior dorsal spines much smaller than those of the body. In a specimen 6 inches long the diameter of the eye equals the width of the præorbital and the depth of the scaly portion of the cheek, but is less than the width of the interorbital space, which is convex. The angle formed by the præopercular limbs is a right one. Snout considerably produced, with the lower jaw strongly projecting beyond the upper, rather longer than the postorbital portion of the head. The height of the body is less than one third, the length of the head considerably more than one third of the total length (without caudal). Dorsal spines rather short, of moderate strength, the longest being one third of the length of the head. Pectoral fin reaching to the vent. Body uniform brownish black, fins black.

Some of the gill-rakers are T- or hammer-shaped.

A single specimen, 6 inches long, was obtained by the Rev. J. A. Williams.

*HEMICHROMIS LIVINGSTONII*, sp. n. (Plate LVI. fig. B.)D.  $\frac{16}{10}$ . A.  $\frac{3}{9}$ . L. lat. 32. L. transv.  $\frac{7}{12}$ .

Teeth conical, but a few show traces of an additional cusp, twenty-six on each side of the outer series of the upper jaw. Scales below the eye very thin, in five rather irregular series; those on the neck and anterior part of the back much smaller than those of the body. In a specimen 5 inches long the diameter of the eye is less than the depth of the scaly portion of the cheek, but equals the width of the præorbital and of the interorbital space, which is convex. The angle formed by the præopercular limbs is a right one. Snout moderately produced, equal to the postorbital portion of the head, the lower jaw projecting but little beyond the upper. The height of the body is a little less than the length of the head, which is nearly one third of the total (without caudal). Dorsal spines of moderate strength and length, the longest being two fifths of the length of the head. Pectoral fin reaching to the anal. Body largely and irregularly marbled with black and silvery; head ornamented with several black bands, one from the eye to the angle of the mouth, merging into the black coloration of the lower parts, another band from the eye over the operculum, a third across the forehead, and a fourth across the foremost part of the neck; dorsal and caudal marbled with lighter and darker, ventral and anal black.

None of the gill-rakers are hammer-shaped.

A single specimen, 5 inches long, is in the Johnston collection.

*HEMICHROMIS AFER*, sp. n. (Plate LVII. fig. B.)D.  $\frac{16}{9}$ . A.  $\frac{3}{8}$ . L. lat. 30. L. transv.  $\frac{5}{10}$ .

Teeth conical, eighteen on each side of the outer series of the upper jaw. Scales below the eye in four rather irregular series; those on the neck and anterior part of the back much smaller than those of the body. In a specimen 4 inches long the diameter of the eye equals the width of the præorbital and the depth of the scaly portion of the cheek, but is less than the width of the inter-orbital space, which is convex. The angle formed by the præopercular limbs is a right one. Snout short and obtuse, shorter than the postorbital portion of the head, the lower jaw not projecting beyond the upper. The height of the body is somewhat more than the length of the head and equal to one third of the total (without caudal). Dorsal spines of moderate strength and length, the longest being about two fifths of the length of the eye. Pectoral fin reaching to the vent. Body uniform more or less dark brown, a spot on the end of the opercle and all the fins deep black.

Gill-rakers short, some of them T- or hammer-shaped.

Two specimens, the longer 4 inches long, were collected by the Rev. J. A. Williams.

*BAGRUS MERIDIONALIS*, sp. n.

This species is closely allied to *B. bayad*, agreeing with this Nilotic form in the shape and configuration of the head and the number of fin-rays, but the dorsal and pectoral spines are much weaker, scarcely stronger than the rays; the maxillary barbels are shorter, only about as long as the head; and the adipose fin occupies a much shorter space of the back, its distance from the dorsal fin being equal to the length of the latter.

The dry skin of a specimen  $22\frac{1}{2}$  inches long has been sent by Mr. Johnston from the Upper Shiré River; of course, it would occur also in the Lake itself, and it probably reaches to a very considerable size, like its congeners.

*ENGRAULICYPRIS*, g. n. Cyprin.

Shape of the head and body elongated, cylindrical like that of an Anchovy. Scales of moderate size, deciduous. Lateral line? Dorsal fin short, with less than nine branched rays, opposite to the commencement of the anal. Anal fin with about fourteen rays. Snout compressed, with the mouth of moderate width, lateral; the upper jaw almost entirely hidden below the large præorbital. Sub-orbitals covering nearly the entire cheek. Gill-rakers very slender. Pharyngeal teeth in a double series, pointed.

*ENGRAULICYPRIS PINGUIS*, sp. n.

D. 11. A. 14. L. transv. 9 or 10.

Body very low, subcylindrical, its depth being one seventh or one eighth of the total length without caudal; the length of the



head is contained four times and one third in it. Eye large, shorter than the snout, and one fourth of the length of the head, occupying a position somewhat anterior to the middle of the head, The snout is pointed, with the mouth resembling that of a Clupeoid, the jaws having sharp margins, but being toothless; lower jaw not projecting when the mouth is closed, but provided with a short symphyseal hook; bones of the suborbital ring, and particularly the præorbital, dilated. Head flat above; interorbital space rather



*Engraulicypris pinguis.*

narrower than the orbit. All the fins are short and feeble. The ventrals inserted somewhat nearer to the root of the caudal fin than to the end of the snout. The first dorsal ray is somewhat in advance of the first anal ray and nearer to the root of the caudal than to the gill-opening. Caudal emarginate.

All the scales are lost, but from the impressions of the skin it would appear that there are nine or ten scales in a transverse series below the origin of the dorsal fin.

Back dark bluish green, this colour being sharply defined from the silvery of the sides and lower parts; sides of the head bright silvery. The middle of the caudal fin is blackish with whitish centre.

Two specimens, 4 inches long, in bad condition, are sent by the Rev. J. A. Williams. I cannot help thinking that this fish, if it occurs in any great numbers and is easy of capture, might be preserved in a way similar to Anchovies and would form a useful addition to the food of the European community.

*HAPLOCHILUS JOHNSTONI*, sp. n.

D. 7. A. 12-13. L. lat. 29. L. transv. 7.

The height of the body is one fourth or one fifth of the total length, without caudal; the length of the head a little less than one fourth. Head compressed; snout somewhat depressed; lower jaw projecting beyond the upper. The width of the interorbital space is less than one half of the length of the head. The diameter of the eye equals the length of the snout, and is a little less than one third of the length of the head. The origin of the dorsal fin is twice as distant from the eye as from the root of the caudal, and corresponds to the seventeenth scale of the lateral line or to the ninth anal ray. Pectoral fin extending beyond the root of the ventral. None of the fins elongate. Coloration of specimens in spirit uniform reddish olive; a fine bluish line runs along the scales of the lateral line.

Several specimens are sent from Fort Johnston; they were collected in November; their length is from 18 to 20 lines.

Allied to *Haplochilus petersi* (Sauvage), but differing in various particulars.

#### EXPLANATION OF THE PLATES.

##### PLATE LIII.

*Chromis squamipinnis*, p. 621.

##### PLATE LIV.

- Fig. A. *Chromis johnstoni*, p. 622.  
B. *Chromis subocularis*, p. 621.  
C. *Chromis tetrastigma*, p. 623.

##### PLATE LV.

- Fig. A. *Chromis lethrinus*, p. 622.  
B. *Chromis callipterus*, p. 623.

##### PLATE LVI.

- Fig. A. *Chromis kirki*, p. 624.  
B. *Hemichromis livingstonii*, p. 625.  
C. *Chromis williamsi*, p. 624.

##### PLATE LVII.

- Fig. A. *Hemichromis modestus*, p. 625.  
B. *Hemichromis afer*, p. 626.

## 2. Descriptions of the Reptiles and Fishes collected by Mr. E. Coode-Hore on Lake Tanganyika. By Dr. A. GÜNTHER, F.R.S., V.P.Z.S.

[Received November 7, 1893.]

(Plate LVIII.)

Mr. Coode-Hore, who was resident for several years on the shores of Lake Tanganyika, brought home in 1889 a small collection of Snakes and Fishes. The specimens had greatly suffered during the long voyage to England, but some of them were in a sufficiently good state of preservation to be acquired for the British Museum and to be described here. I have deferred an account of them in the hope of seeing them supplemented by subsequent collections; but as it seems desirable to work them out in comparison with those from Lake Nyasa and other parts of Eastern Equatorial Africa, I will not allow the present occasion to pass without giving an account of them.

The discovery of two species of *Mastacembelus*, connecting the Asiatic species with the West African, is only one of the interesting facts which a more extended investigation of the Fish-fauna of this remarkable lake is sure to reveal.